

IN THE CLAIMS:

Please amend the claims, as indicated below. The following is a complete listing of claims and replaces all prior versions and listings of claims in the present application:

1. (Currently Amended) A method for networking a plurality of clients in a personal video recording (“PVR”) system, said method comprising the steps of:
 - receiving a plurality of television signals;
 - tuning each of said television signals in one of a plurality of tuners;
 - buffering said television signals on a storage medium in at least one PVR media server, wherein the buffered television signals are accessible from the storage medium based on a plurality of independent read taps;
 - coupling a plurality of clients, over a network, to said PVR media server;
 - receiving at least one request from each of at least two clients for at least one service in said PVR system;
 - allocating resources of said PVR system to said clients, as appropriate, to deliver said at least one service to each of said clients, wherein resources of the PVR system comprise the plurality of tuners and the plurality of independent read taps, and wherein the different clients may share at least one service using the independent read taps;
 - designating one of at least three states to a first tuner of the plurality of tuners based on allocation of the first tuner and usage of the plurality of clients, the at least three states comprising at least: a busy state, a maybe free state, and a totally free state;
 - storing, in a memory, the designated state for the first tuner prior to at least one scheduled event based on said allocating;

detecting a conflict for the first tuner among the requesting clients; [[and]]

resolving the conflict among the requesting clients based on the designated state of the first tuner stored in the memory, and the availability of the resources of the PVR system comprising the tuners and the plurality of independent read taps; and

in a case where a new device is coupled to the network;

receiving at the new device, through the network, from said PVR media server, a network protocol and a content service supported by said PVR media server, the content service for allowing the new device to access buffered television signals, buffered at said PVR media server, at respective buffer positions via respective read taps, the new device comprising at least one of a PVR media server and a client that access buffered television signals via read taps,

sending from the new device at least one request to said PVR media server for the content service, the new device sending the request via the network protocol, and

allocating at least one tuner having one of a maybe free state and a totally free state to the new device to deliver the content service to the new device, the state of the allocated tuner being designated based on allocation of the tuner and usage of the plurality of clients.

2. (Original) The method as set forth in claim 1, wherein:

the step of receiving at least one request comprises the step of receiving a request to record a television program; and

the step of allocating resources of said PVR system to said clients comprises the steps of:

assigning a tuner to record said television program;

allocating space on said storage medium to record said television program; and

storing said television signal on said storage medium during a time scheduled for said television program.

3. (Previously Presented) The method as set forth in claim 1, wherein:

the step of receiving at least one request comprises the step of receiving a request to watch buffered live television; and

the step of allocating resources of said PVR system comprises the steps of:

assigning a tuner to said client;

generating a buffer position to identify a location within said television signal for playback of said television signal at a client; and

transferring said television signal to said client, so as to deliver said television signal using said buffer position.

4. (Original) The method as set forth in claim 1, wherein:

the step of receiving at least one request comprises the step of receiving a request to receive television signals from a specific television service provider; and

the step of allocating resources of said PVR system comprises the steps of:

identifying one or more tuners coupled to receive television signals from said television service provider; and

assigning a tuner from said tuners to receive television signals from said television service provider.

5. (Original) The method as set forth in claim 1, wherein the step of allocating resources of said PVR system to said clients comprises the step of resolving any conflicts of assigning resources to said clients.

6. (Original) The method as set forth in claim 5, wherein:

the step of receiving at least one request comprises the step of receiving a request to watch buffered live television at a channel selected; and

the step of resolving any conflicts of assigning resources comprises the steps of:

determining whether one of said tuners is available to receive said television signal;

if so, assigning said tuner to receive said television signal at said channel selected;

if not, determining which tuners are potentially available;

querying clients assigned to said tuners potentially available to determine whether said clients desire to change a current channel of said tuner to said channel selected; and

assigning a tuner potentially available to receive a television signal at said channel selected if no clients cancel a change of said current channel.

7. (Original) The method as set forth in claim 5, wherein:

the step of receiving at least one request comprises the step of receiving a request to record a television program; and

the step of resolving any conflicts of assigning resources comprises the steps of:

determining whether one of said tuners is available to receive said television signal;

if so, assigning said tuner to receive said television signal;
if not, determining which tuners are potentially available;
querying clients assigned to said tuners potentially available to determine whether said clients desire to cancel recordation of said television program; and
assigning a tuner potentially available to receive said television signal if no clients cancel recordation of said television program.

8. (Previously Presented) The method as set forth in claim 5, further comprising the steps of:

designating a totally free tuner state to a tuner not assigned to a client;
designating a maybe free tuner state to a tuner assigned to a client but not currently executing a scheduled recordation; and
designating a busy tuner state to a tuner currently executing a scheduled recordation.

9. (Currently Amended) A personal video recording ("PVR") media server comprising:

an input for receiving a plurality of television signals;
a plurality of tuners for tuning each of said television signals;
a storage medium for buffering said television signals, wherein the buffered television signals are accessible based on a plurality of independent read taps;
a network interface for coupling a plurality of clients, over a network, to said PVR media server; and

said PVR media server for receiving at least one request from each of at least two clients for at least one service in a PVR system, and for allocating resources of said PVR system to said two clients, as appropriate, to deliver said at least one service to each of said clients, wherein resources of the PVR system comprise the plurality of tuners and the plurality of independent read taps, and wherein the different clients may share at least one service using the independent read taps;

the PVR server configured to designate one of at least three states to a first tuner of the plurality of tuners based on allocation of the first tuner and usage of the plurality of clients, the at least three states comprising at least:

a busy state, a maybe free state, and a totally free state,

a memory for storing the designated state for the first tuner based on said allocating, the storing prior to at least one scheduled event:

the PVR server further for

detecting a conflict for the first tuner among the requesting clients; and

resolving the conflict among the requesting clients based on the designated state of the first tuner stored in the memory and the availability of the resources of the PVR system comprising the tuners and the plurality of independent read taps,

wherein in a case where a new device is coupled to the network:

the new device receives, through the network, from said PVR media server, a network protocol and a content service supported by said PVR media server, the content service for allowing the new device to access buffered television signals, buffered at said PVR media server, at respective buffer positions via respective read taps, the new device comprising at least one of a PVR media server and a client that access buffered television signals via read taps,

the new device sends at least one request to said PVR media server for the content service, the new device sending the request via the network protocol, and
at least one tuner having one of a maybe free state and a totally free state is
allocated to the new device to deliver the content service to the new device, the state of the
allocated tuner being designated based on allocation of the tuner and usage of the plurality of
clients.

10. (Original) The PVR media server as set forth in claim 9, wherein:
said input further for receiving a request to record a television program; and
said PVR media server further for assigning a tuner to record said television program, for allocating space on said storage medium to record said television program, and for storing said television signal on said storage medium during a time scheduled for said television program.

11. (Original) The PVR media server as set forth in claim 9, wherein:
said input further for receiving a request to watch buffered live television; and
said PVR media server further for assigning a tuner to watch said buffered live television, for generating a buffer position to identify a location within said television signal for playback of said television signal at a client, and for transferring said television to said client, so as to deliver said television signal using said buffer position.

12. (Original) The PVR media server as set forth in claim 9, wherein:

said input further for receiving at least one request comprises the step of receiving a request to receive television signals from a specific television service provider; and

said PVR media server further for identifying one or more tuners coupled to receive television signals from said television service provider, and for assigning a tuner from said tuners identified to said client.

13. (Original) The PVR media server as set forth in claim 9, said PVR media server further for resolving any conflicts of assigning resources to said clients.

14. (Original) The PVR media server as set forth in claim 13, wherein:

said input further for receiving a request to watch buffered live television at a channel selected; and

said PVR media server further for determining whether one of said tuners is available to receive said television signal;

if so, for assigning said tuner to receive said television signal at said channel selected;

if not, for determining which tuners are potentially available, for querying clients assigned to said tuners potentially available to determine whether said clients desire to change a current channel of said tuner to said channel selected, and for assigning a tuner potentially available to receive a television signal at said channel selected if no clients cancel a change of said current channel.

15. (Original) The PVR media server as set forth in claim 13, wherein:

said input further for receiving a request to record a television program; and

said PVR media server further for determining whether one of said tuners is available to receive said television signal;

if so, for assigning said tuner to receive said television signal;

if not, for determining which tuners are potentially available, for querying clients assigned to said tuners potentially available to determine whether said clients desire to cancel recordation of said television program, and for assigning a tuner potentially available to receive said television signal if no clients cancel recordation of said television program.

16. (Previously Presented) The PVR media server as set forth in claim 13, said PVR media server further

for designating a totally free tuner state to a tuner not assigned to a client,

for designating a maybe free tuner state to a tuner assigned to a client but not currently executing a scheduled recordation, and

for designating a busy tuner state to a tuner currently executing a scheduled recordation.

17. (Currently Amended) A personal video recording ("PVR") system comprising:

at least one PVR media server comprising:

an input for receiving a plurality of television signals;

a plurality of tuners for tuning each of said television signals;

a storage medium for buffering said television signals, wherein the buffered television signals are accessible based on a plurality of independent read taps;

a network; and

a plurality of clients, coupled over said network to said PVR media server, for receiving at least one request from each of at least two clients for at least one service in said PVR system, and for allocating resources of said PVR system to said clients, as appropriate, to deliver said at least one service to each of said clients, wherein resources of the PVR system comprise the plurality of tuners and the plurality of independent read taps, and wherein the different clients may share at least one service using the independent read taps;

the PVR system configured to designate one of at least three states to a first tuner of the plurality of tuners based on allocation of the first tuner and usage of the plurality of clients, the at least three states comprising at least: a busy state, a maybe free state, and a totally free state,

a memory for storing the designated state for the first tuner based on said allocating, the storing prior to at least one scheduled event;

the PVR server further for

detecting a conflict for the first tuner among the requesting clients[[:]]; and

resolving the conflict among the requesting clients based on the designated state of the first tuner stored in the memory and the availability of the resources of the PVR system comprising the tuners and the plurality of independent read taps,

wherein in a case where a new device is coupled to the network:

the new device receives, through the network, from said PVR media server, a network protocol and a content service supported by said PVR media server, the content service

for allowing the new device to access buffered television signals, buffered at said PVR media server, at respective buffer positions via respective read taps, the new device comprising at least one of a PVR media server and a client that access buffered television signals via read taps,

the new device sends at least one request to said PVR media server for the content service, the new device sending the request via the network protocol, and

at least one tuner having one of a maybe free state and a totally free state is allocated to the new device to deliver the content service to the new device, the state of the allocated tuner being designated based on allocation of the tuner and usage of the plurality of clients.

18. (Currently Amended) The system of claim 17[[:]], further configured for resolving conflicts of assigning resources to the clients,

the busy state for indicating that the server is currently receiving a program by using the first tuner;

the maybe free state for indicating a probability that a client is viewing a program by using the first tuner, wherein when a tuner is designated as in the maybe free state a user selects to view a program at a client and the PVR system is missing information as to whether the user is still viewing the program; and

the totally free state for indicating when a tuner is not allocated by a scheduler and a client is not viewing programming by using the tuner; wherein:

the input is further for receiving one or more of:

a request to watch buffered live television at a channel selected, and

a request to record a television program;

the PVR media server is further for determining whether one of the tuners is available to receive the television signal;

if so, for assigning a first tuner to receive the television signal at the channel selected;

if not, for determining which tuners are potentially available, for querying clients assigned to the tuners potentially available to determine whether the clients desire to change a current channel of the tuner to the channel selected, and for assigning a tuner potentially available to receive a television signal at the channel selected if no clients cancel a change of the current channel and if no clients cancel recordation of the television program.

19. (Previously Presented) The system of claim 17, further comprising a new device coupled to the network, and a set of compatible devices on the network include one or more PVR-media servers configured for storing pre-recorded video and for providing live television,

wherein to discover services on the network, the new device transmits a discovery command and waits for a response,

wherein a first PVR-media server on the network exposes an interface to allow the new device to aggregate programming provided by the PVR-media server in response to the request, the new device connects to a compatible device via a supporting protocol, and the compatible device translates the protocol for the appropriate device using state information.

20. (Previously Presented) The system of claim 19, wherein the new device comprises a television, and the compatible device supports an industry standard protocol,

wherein the industry standard protocol is selected to communicate to the compatible device and to use the services provided by the compatible device.

21. (Previously Presented) The system of claim 17, wherein the PVR system is further configured for discovering devices in the networked PVR system, wherein when a new device not currently connected to the network is connected to the network, in order to communicate on the network, the new device obtains a network address,

the system further comprising a home media network, and a plurality of devices having network addresses, wherein if the underlying network supports TCP/IP, then the new device determines if there is an available DHCP server;

if so, the DHCP server assigns the network address to the new device;

if a DHCP server is not available to assign the new device a network address, then the new device selects a network address from a pool and determines whether any other device on the network has the selected network address, wherein if no other device on the network has the selected network address, then the new device uses the selected network address, wherein the network addressing allows communication on the network within a single subnet;

wherein the new device transmits an announcement command over the network, the format of the announcement command complies with a supported protocol, wherein the new device broadcasts or multicasts the announcement command over the network, the multicast of the announcement command is for expanding subnets if the network includes a gateway, wherein a multicast format is used to specify specific network addresses transmitting an announcement only to those devices on the network interested or compatible with the new device, wherein

compatible devices are those devices that are interested in communicating with the new device, wherein a compatible device on the network exposes one or more services to the new device;

wherein in response to the new device's announcement command, the new device constructs state information that provides details regarding devices available on the network, the state information comprising protocols and services supported by the networked devices, such that when compatible devices on the network receive the announcement command, the compatible devices add information encapsulated in the announcement command, to a local cache.